

REMARKS

In the Office Action dated October 22, 2004, the Examiner objected to claims 20-38, 48, 49, 59-67, and 88-98; rejected claims 49, 50, 54-58, 88-97, and 99 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,479,447 of Chow et al. ("Chow"); set forth several grounds for finding the reissue declaration to be defective; and rejected claims 1-100 as being based on a defective reissue declaration.

Applicants have amended the specification. Applicants have also amended original claims 1, 10, 15, and 16, and re-presented new claims 20-100. Claims 1-100 are pending.

In response to the Examiner's request in paragraph 1 of the Detailed Action, Applicants have amended the specification to add the issue date of related U.S. Patent No. 6,084,917 and the corresponding patent numbers and issue dates of related U.S. patent application nos. 08/991,444, 08/991,449, 08/991,453 and 08/881,998 disclosed under the title "Cross Reference To Related Applications."

Following is a summary of the amendments to the claims:

1. Claims 1, 10, 15, and 16 were amended to correct informalities.
2. Claims 20, 49, 59, and 88 were amended to add the phrase "according to the signal-to-noise ratios associated with the sub-channels," in response to an objection by the Examiner. Support for these claim amendments is pointed out below.
3. Claim 32 was amended at line 1 to improve grammar by deleting "wherein".
4. In claims 35, 53, 74, and 92, in the phrase "the multiplication of the first power margin and the second power margin," "multiplication of" was amended to --product of multiplying--, to improve grammar.

5. In claims 40, 45, 51, 90, 98, and 100, the phrase “equal to the target data rate” was amended by deleting “to”, to improve grammar.

6. Claim 43 was amended at line 2 to change “the value” to --a value--, to improve clarity.

7. Claim 48 was amended to depend from claim 47 to provide antecedent basis for “the order”, as instructed by the Examiner.

8. Claim 51 was amended by adding --and-- at the end of the next to the last paragraph, to improve grammar.

9. Claim 54 was amended at line 2 to change “comprising” to --comprises-- and at line 4 to insert --a-- before “number”, to improve grammar.

10. In claims 56 and 95, the phrase “the minimum bit loading and the maximum bit loading” was amended to change “the” (both occurrences) to --a--, to improve clarity.

11. Claim 57 was amended at line 2 to change “existed” to --existing--, to improve grammar.

12. Claim 58 was amended at line 2 to change “bit loadings” to --bit loading capacities--, to improve clarity.

13. Claim 62 was amended at line 1, to change “where” to --wherein-- to improve grammar.

14. Claim 66 was amended at line 4 to change “channel” to --sub-channel-- to improve clarity.

15. Claim 68 was amended at line 9 to change “bit loading” to --bit loadings-- to improve grammar.

16. claim 70 was amended at line 1 to change “where in” to --wherein-- to correct a typographical error.

17. Claim 78 was amended at line 14 to change “at one of the sub-channels” to --at least one of the sub-channels-- to improve grammar.

18. Claim 79 was amended to delete “the steps of”, to insert --plurality of-- before “first power margin factor”, and to change “to allocate the additional bits” to --allocating at least one additional bit--, to improve clarity.

19. Claim 85 was amended to delete “the steps of” and to change “to drop” to --dropping--, to improve clarity and grammar.

20. Claim 91 was amended at line 2 to insert --configured to-- after “the processor is” and to delete “to” at the beginning of each subsequent paragraph, to improve grammar.

21. Claim 98 was amended at line 1 to insert a colon --:-- after “comprising” to correct an inadvertent omission.

22. Claim 99 was amended at line 4 to change “the power margin” to --a power margin--, to improve clarity.

Support for all claim amendments is as follows: Support for amended claims 1, 10, 15, and 16 may be found, for example, in col. 11, line 49 through col. 18, line 64. Support for amendments among claims 20-38 may be found, for example, in col. 11, line 49 through col. 16, line 52. Support for amendments among claims 39-48 may be found, for example, in col. 16, line 53 through col. 20, line 3. Support for amendments among claims 49-58 may be found, for example, in col. 11, line 49 through col. 16, line 52. Support for amendments among claims 59-77 may be found, for example, in col. 11, line 3 through col. 16, line 52 and col. 20 ll. 4-57. Support for amendments among claims 78-87 may be

found, for example, in col. 11, ll. 3-48 and col. 16, line 53 through col. 20, line 57. Support for amendments among claims 88-100 may be found, for example, in col. 11, line 3 through col. 16, line 52 and col. 20 ll. 4-57.

I. Objection of Claims 20-38, 48, 49, 59-67, 88-98

The Examiner objected to independent claims 20, 49, 59, and 88 because the claimed “measured, obtained and stored signal to noise ratio” should be recited as used for detecting data capacity. The Examiner inherently objected to claims 21-38, 60-77, and 89-96 as being dependent on one of independent claims 20, 49, 59, and 88. In response, Applicants have amended claims 20, 49, 59 and 88 to recite determining data capacities (claims 20 and 59) or bit loading capacities (claims 49 and 88) associated with the sub-channels “according to the signal-to-noise ratios associated with the sub-channels.” No new matter is added by these amendments. Support for these amendments is found in Applicants’ specification at, for example, column 10, line 59 - column 14, line 63. In view of these amendments, Applicants request withdrawal of the objections to claim 20-38, 48, 49, 59-67, and 88-98.

Applicants have also amended claim 48 to depend from claim 47 in accordance with the Examiner’s suggestion. In view of this amendment, Applicants request withdrawal of the objection to claim 48.

II. Rejection of Claims 49, 50, 54-58, 88-97, and 99 under 35 U.S.C. § 103(a)

The Examiner rejected claims 49, 50, 54-58, 88-97 and 99 under 35 U.S.C. § 103(a) as being unpatentable over Chow. Specifically, the Examiner stated that Chow “teaches an adaptive bit and power allocating in a multi-carrier transmission system (figs 13 and 14) comprising: measuring the signal to noise [ratio] of the multi-carriers (see computing SNR

in figs 9 and 10); determining the load capacity and power modification according to the maximum and minimum power level of each subcarrier and according to computed SNR (see computation of B_{max} and E_j in fig. 9 and starting col. 7, line 1 through col. 12, line 10)." Applicants traverse this rejection.

Applicants disclosed Chow in the Background of the Invention section of U.S. Patent No. 6,292,515 (the '515 patent) for which this reissue is sought. (col. 2, line 53-60) Applicants also disclosed an article entitled "A Practical Discrete Multi-tone Transceiver Loading Algorithm for Data Transmission over Spectrally Shaped Channels" by Chow et al. (col. 4, line 25 - col. 5, line 63, hereinafter the "Chow article"). The content of the Chow article is similar to that of the Chow patent. Applicants discussed aspects of both Chow and the Chow article in the Background of the Invention section of the '515 patent, a portion of which follows:

This approach is simple, but its computational complexity is a direct function of the number of bits to be added or subtracted to achieve the target bit rate. Furthermore, this technique does not consider the power margin of the sub-channel, and for that reason, it is unable to approach the optimum performances. Finally, the bit fine tuning process described in Chow is tied to the initial bit and energy loading algorithm, making it difficult for it [to be] be extended easily to other bit and energy loading implementations. (*id.*, col. 5, lines 51 - 60)

Thus, as explained by Applicants in the '515 patent, Chow fails to disclose or suggest determining bit loading capacities associated with the sub-channels at the power margin and determining a total bit rate at the power margin, as required by each of rejected independent claims 49, 88, 97, and 99. The Examiner has therefore failed to establish a *prima facie* case of obviousness, since Chow fails to teach or suggest all the claim elements. As a result, independent claims 49, 88, 97, and 99 are patentable over

Chow. Rejected claims 50, 54 - 58, and 89 - 96 are also patentable over Chow at least due to their dependence from one of allowable independent claims 50 and 88.

Therefore, the rejection of claims 49, 50, 54-58, 88, 89, 90-96, 97 and 99 under 35 U.S.C. § 103(a) is improper and should be withdrawn.

III. Rejection of Claims 1-100 based upon a defective reissue declaration under 35 U.S.C. 251

The Examiner pointed out several grounds on which he alleged the reissue declaration is defective and rejected claims 1-100 as being based on a defective reissue declaration. Applicants submit the reissue declaration is not defective and traverses the rejection of claims 1-100.

In paragraph 7 of the Office Action, the Examiner asserts the reissue declaration is defective because it does not contain the statement required under 37 C.F.R.

§ 1.175 (a)(1) as to Applicants' belief that the original patent is wholly or partly inoperative or invalid. Applicants disagree. The statement required under § 1.175(a)(1) is clearly set forth in paragraph 8 of the reissue declaration.

In paragraph 8 of the Office Action, the Examiner asserts the reissue declaration is defective because it does not identify at least one error which is relied upon to support the reissue application. Applicants disagree. Paragraphs 8 and 10 of the reissue declaration clearly set forth at least one error relied upon to support the reissue application.

In paragraph 9 of the Office Action, the Examiner asserts the reissue declaration is defective because it does not contain a statement that all errors, which are being corrected in the reissue application up to the time of filing of the declaration, arose without any

deceptive intention on the part of the applicants. Applicants disagree. Paragraph 9 of the reissue declaration clearly constitutes such a statement.

Accordingly, since the reissue declaration clearly meets all of the formal requirements pointed out by the Examiner, Applicants request that the Examiner withdraw the rejection of claims 1-100.

In view of the amendments and remarks presented by Applicants, this reissue application is in condition for allowance. A favorable action is therefore requested.

If the Examiner believes a telephone interview would expedite the prosecution of this reissue application, the Examiner is invited to contact Richard Burgujian at (571) 203-2790. Please charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: February 22, 2005

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Date: <u>February 22, 2005</u>	Signed: <i>Linda Phillips</i> Linda Phillips

Reissue Application of
U.S. Patent No. 6,292,515